

## EDGE PROTECTOR

This invention relates to an edge protector, a transit package, a display means  
5 and a method of protecting the edge of an article.

It is well established in the conveying arts that it is often necessary to protect the  
edges of palletised goods whilst in transit. Damage can be caused to palletised goods  
in a variety of ways and such damage has the effect of reducing profits for the retailer,  
10 transporter and/or manufacturer. Consequently, so-called edge protectors are often  
used to protect the edges of palletised goods to avoid, or at least reduce, such damage.  
Examples of known edge protectors are disclosed in US 4877673, US 4742916 and  
US 3049260.

15 It is further known that certain positions within a shop, such as a supermarket,  
are more likely to lead to a purchase by a consumer. For example, promotional items or  
goods on special offer are often displayed at the ends of aisles. Such displays tend to  
elicit a greater deal of attention from both casual observers and active shoppers,  
thereby hopefully leading to a purchase.

20 Aisle-end displays often require goods to be located within dedicated display  
means, such as large containers, often large cardboard boxes. These large containers  
are normally decorated with advertising literature regarding the product or other  
promotional information.

In use, a retailer will either accept a delivery of the goods to be promoted and an associated display means which will be assembled and located with the goods therein at the requisite site in the store or, alternatively, the manufacturer will send the goods to  
5 the retailer, already packaged in the display means and ready to be displayed.

These known display means are expensive and, if transported whilst laden, that is already containing the product, they are liable to be damaged on route. Such damage will obviously be expensive for the parties involved, as well as ruining the appearance  
10 of the display means within the store and/or the so-packaged goods.

It is an object of the present invention to provide an improved, robust edge protector which may be used to provide display means for goods and which can be manufactured cheaply and thereby provide savings of both material and capital to  
15 manufacturers and retailers.

According to the first aspect of the invention there is provided an edge protector for protecting the edge of an article, the edge protector comprising a pair of interconnected, non-parallel, first arms which, in use, do not contact any part of the  
20 article, and a pair of second arms for contacting or at least being situated adjacent the article in use, one of each of said second arms being connected to one of each of said first arms and characterised in that a portion of each of said second arms is arranged in non-parallel relations to its' respective first arm.

A second aspect of the invention provides an edge protector for protecting the edge of an article the edge protector comprising a pair of interconnected, non-parallel, first arms which, in use, do not contact any part of the article, and a pair of second arms for contacting or at least being situated adjacent the article in use, one of each of said second arms being connected to one of each of said first arms, and being characterised in that the edge protector is resiliently deformable so as to absorb energy from an impact therewith.

There is further provided, in a third aspect of the invention, a transit package comprising a base portion, such as a pallet, having located thereon an article to be transported and a plurality of edge protectors as previously defined, each edge protector being located at an edge of the article and preferably being retained in place at that edge by retaining means such as shrink-wrap, rope, string, straps and so on.

There is also provided, in a further aspect of the invention, a display means comprising a set of edge-defining members and a set of wall members, each wall member having a peripheral portion thereof located and retained within a recess of an edge-defining member, the recess being defined by a pair of generally parallel arms, only one of which being located, in use, adjacent the goods to be displayed, the other being distant, in use, from said goods and defining an air gap adjacent the vertex of the goods and being characterised in that each recess tapers so as to provide a clamping action on each peripheral portion of the wall members located therein..

Preferably, the goods located within the display means are piled as a regular stack of goods.

5 Preferably there is an equal number in the set of wall members and set of edge-defining members.

A fifth aspect of the invention provides a method of protecting the edge of an article comprising locating and retaining, for example during transport or storage or display, at that edge an edge protector as previously defined.

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The article may comprise a stack or pile of goods.

15 The edge protectors or edge-defining members are preferably made from a durable material. They may be constructed from a plastics material such as polyvinyl chloride or polyethylene. The plastics material may be coloured or have another decorative finish. Alternatively, the edge protectors may be made from materials derived from wood; hardboard, plasticised cardboard and so on, or composite materials such as material derived from a mixture of wood or paper pulp and a rubber material.

20 In an embodiment of the invention, the edge protector or edge-defining member may comprise a recess into which reinforcement means may be insertable.

In order that the invention may be better understood it will now be described by way of example and with reference to the accompanying drawings, in which:

Figure 1 shows a plan view of an edge-protector;

Figure 2 shows a plan view of the edge protector of Figure 1 together with wall members;

- 5 Figure 3 is a perspective view of the edge protector and wall members of Figure 2; and  
Figure 4 is a plan view of a second embodiment of edge protector.

Referring firstly to Figure 1, there is shown a plan view of an edge protector 1 which comprises a plurality of interconnected wall members 2, 4, 6, 8, 10, 12.

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The edge protector 1 comprises a pair of first, perpendicular arms 2, 4 connected to one another at a vertex 3 extending the entire length of the protector 1, normal to the plane of the paper, as viewed. At the distal edges 5 of each perpendicular arm 2, 4 there is connected an arm portion 6, 8, each of which is located parallel to the  
15 respective perpendicular arms 2, 4. Each arm portion 6, 8 is connected to a second arm 10, 12, the gap or recess 14 therebetween being tapered such that it narrows from the point of connection of each arm portion 6, 8 to its respective second arm 10, 12.

The whole of each half of the edge protector 1 (first arm 2, arm portion 6,  
20 second arm 10) has a generally S-shaped profile, in cross-section.

The edge protector 1 can be made from a plastics material such as polyvinyl chloride or polyethylene or from a wood or paper derived substance, hardboard, plasticised cardboard or other materials which would provide a rigid, durable and

damage resistant protector 1. A preferred material is rubber particles retained within a paper-pulp derived matrix.

In use, the edge protector may be simply presented to the edge of an article to be protected, such as a stack of goods, such that the inner surface 20 of each arm 10, 12 abuts or is at least adjacent the article. As seen in Figure 2, where the edge or corner of the article 50 is represented by a dotted line, the vertex 51 of the article is not adjacent any of the wall portions of the protector 1.

The edge protector 1 may be retained in position by any known means. For example, the article may be shrink-wrapped in plastics sheet once the edge protectors 1 have been located on the article. Similarly, straps, rope, string, adhesives and so on may be used.

As previously mentioned, once the edge protector 1 is installed on an article there is an air gap 25 between the inner surface of the vertex 3 and the vertex 51 of the article. The air gap 25 provides a cushion to the article to protect it any impact in that region. Although it is preferable that the protector 1 should be constructed from a rigid material, the configuration of the wall members 2, 4, 6, 8, 10, 12 provides a degree of resilience. Thus, during an impact incident, the members, for example 2, 6 and 10, may be forced together, absorbing at least some of the energy of the impacting force. The members 2, 6, 10, subsequent to the removal of the force or at least to its' reduction in magnitude, can then return to their original configuration.

If further corner protection is required, one may locate in the air gap 25 a conventional perpendicular edge protector 30, as shown in Figure 2. Such further protection 30 will not hinder the resilient operation during an impact incident as discussed above, but will afford the corners 50 of an article further protection.

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As also shown in Figures 2 and 3, the edge protector 1 of the invention can be used to provide a display case 40, for the display of goods or other articles. As can be seen, sheet material 42 can be held in the gap or recess 14 defined by each arm portion 6, 8 and the respective arm 10, 12, to which it is connected. The taper of the recess 14 helps to retain the sheet material 42. In a preferred embodiment, the recess 14 tapers from 3.5 mm to 2 mm, the smallest extent being of a size similar to or slightly smaller than the thickness of the sheet material 42. Such a configuration enables the arm portions 6, 8 and their respective arms 10, 12 to provide a clamping effect on any so-sandwiched sheet material 42.

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In order to provide a display case 40, an edge-protector 1 is located at each corner of an article or stack of articles and sheet material 42 is located and retained within the recesses 14, each sheet 42 being held in a recess 14 of two edge-protectors 1.

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One, some or all of the walls defined by the sheet material 42 may comprise apertures through which the displayed goods or articles may be accessed. The display case 40 may also be provided with a lid member to prevent access to the goods or articles from the top of the case 40.

In the above discussion, the focus has been on the protection of rectangular articles or the display of rectangular display cases. However, it is permissible to provide an edge protector to protect the corner of a non-rectangular article, such as a triangular article, or an article of other polygonal form for example.

With reference to Figure 4, there is shown an edge protector 101 for the protection of triangular articles. In such an embodiment, the wall members 102, 104, 106, 108 of each respective half of the protector 101 are located parallel to one another, the arms 110, 112 tapering with respect to the wall members 102, 104, 106, 108. Each half of the edge protector 101 (102, 106, 110; 104, 108, 112) is angled with respect to one another to match the angle of the corner of the article. By providing a degree of flexibility to the edge protector 101, by careful consideration of the material of construction, the angle defined by the edge protector 101 need not be exactly that of the article.

It will be readily seen by the skilled addressee, that a triangular display case using the edge protector 101 of Figure 4, can be readily constructed using the method discussed above.

The walls 42 of the display case may be made from any suitable material, cardboard, hardboard, plastics sheet and so on. The sheet material 42 and/or edge-protectors 1 may have thereon advertising, promotional or other information, pictures and so on. Alternatively, the sheet material 42 may be opaque or transparent, coloured



or clear plastics or paper material, facilitating back-lighting from the interior of the display case if so desired.